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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/620,523	07/20/2000	Bruce E. Novich	1596C5	2899

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EXAMINER	
GRAY, JILL M	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/620,523	NOVICH ET AL.	
	Examiner	Art Unit	
	Jill M. Gray	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-40 and 42-58* is/are pending in the application.

4a) Of the above claim(s) *4,6-11,21-39 and 48-58* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,12-20,40 and 42-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Allowable Subject Matter

2. The allowability of claims 5 and 12 is withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 5, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Singer et al, 3,615,303 (Singer).

Singer teaches a laminate comprising a matrix material and a fabric coated with a resin compatible coating comprising a plurality of particles, wherein the fabric has not been desized. See Example 4. It should be noted that the language of "adapted for an electronic support" is drawn to the intended use of the laminate and is not a positive limitation. Accordingly the laminate of Singer anticipates the invention as claimed in present claims 1, 3, 5 and 17.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3, 5, 12-17, 19-20, 40, and 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication 4-307787 (Iketani) in view of Japanese Patent Publication 1-249333 (Nagamina).

Iketani teaches a method for manufacturing a printed circuit substrate by inserting a glass cloth prepeg impregnated with a thermosetting resin varnish. See abstract. In addition Iketani teaches that the prepeg is obtained by impregnating the fiber substrate with a varnish containing a filler and then impregnating with a varnish containing no filler, per claims 1 and 40. The substrate can be glass cloths and nonwoven glass fabrics and the fillers can be inorganic non-polymeric fillers such as short glass fibers, glass beads and balloons, clay, talc, wollastonite, aluminum hydroxide and aluminum oxide, per claims 3, 5, and 42. The filler has a particle size within the instant claimed range, per claims 15 and 44. See [0006]. Also, the thermosetting varnish can be an epoxy resin, polyamide resin or a phenolic resin, wherein the preferred resin is an epoxy resin. See [0007]. Accordingly, Iketani teaches that the glass cloth is impregnated with "resin compatible coating" which is compatible with the matrix material, and that said "resin compatible coating" comprises a plurality of particles, as required by claims 1 and 40. While Iketani teaches that glass cloths can be used he is silent as to the glass cloth being non-degreased.

Nagamina is as set forth previously and teaches a laminate adapted for an electronic support wherein the laminate comprises a glass cloth impregnated with a

resin such as epoxy. Nagamina teaches that the glass yarns that his glass cloth is formed from can be sized with various known sizing agents which can be used in accordance with the purpose of the glass cloth. Nagamina also discloses that a non-desizing sizing agent, which does not require degreasing or surface treatment is known in the art, said non-desizing sizing agent eliminating the necessity of twisting, degreasing, and surface treatment and thereby significantly improving productivity and production yield.

As set forth above, Iketani teaches circuit board substrate comprising a glass cloth prepeg impregnated with a thermosetting varnish containing a filler and a varnish without a filler. Iketani is silent as to whether the glass cloth is non-degreased. Also as set forth above, Nagamina teaches that non-desized glass cloths are known in the art and provide efficacious economic properties such as improved productivity and production yield. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the glass cloth substrate any glass cloth substrates known in the art as being suitable for impregnation of epoxy resins when producing substrates for circuit boards such as a non-desized glass cloth as taught by Nagamina, motivated by the reasonable expectation of success of making a prepeg for a circuit board substrate and improving productivity and production yield.

As to claim 13, Iketani teaches that the particles can short glass fibers, glass beads, and glass balloons. Accordingly, it is the position of the examiner that the particles have a Moh's hardness value which does not exceed the Moh's hardness value of glass fiber.

As to claims 14 and 43, Iketani teaches that the particles have a particle size within applicants' claimed range. Accordingly, it is the examiner's position that the particles of Iketani have a particle size sufficient to allow strand wet out.

As to claims 16-17, 19-20, and 45-46, Iketani is silent as to the specific composition of the resin compatible coating; however, Iketani does teach that epoxy with fillers can be the thermosetting impregnating varnish. Nagamina teaches an epoxy resin for a use in as an impregnating varnish for glass cloth in the formation of circuit boards, said epoxy resin comprising at least one film-forming material, a resin reactive diluent comprising functional groups of the type contemplated by applicants. Note page 17. At the time of the invention thereof, it would have been obvious to the skilled artisan, to impregnate a glass cloth substrate with an epoxy resin composition containing particulate filler, as taught by Iketani, wherein the epoxy resin composition is selected from among those known in the art, such as that taught by Nagamina and as set forth by applicants, motivated by the ability to produce laminates for electronic supports that have good dimensional stability, dielectric properties and heat resistance.

Regarding claim 12, Iketani teaches filler material that is the same type contemplated by applicants, such as oxides, silicates and hydroxides. Accordingly, the examiner has reason to believe that filler material of Iketani have a thermal conductivity within the instant claimed range, in the absence of factual evidence to the contrary.

Therefore, the combined teachings of Iketani and Nagamina would have rendered obvious the invention as claimed in present claims 1, 3, 5, 12-17, 19-20, 40, and 42-46.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 18 and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, claims 18 and 47 set forth that the resin compatible coating has an air permeability, of no greater than 10 standard cubic feet per minute per square foot. These claims are indefinite because it is not clear if this limitation is in reference to the coating per se, or if this limitation is in reference to the fabric having a resin compatible coating on at least a portion thereof.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3, 13-20, 40, and 42-47 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jill M Gray
Primary Examiner
Art Unit 1774

jmg